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EDITORIAL



ARE CONVENTIONS NECESSARY?

Usually at this time of the year Federal Executive and your Federal Councillors are busy preparing the Agenda for the Convention, which in the past has been held at Easter each year.

Federal Council in its wisdom decided at the 1953 Convention that a Convention would not be held in 1954, unless urgent or important matters warranted a change of plans. The reasons being the high cost, lack of important items and the closer liaison now existing between the Federal Councillors and the Federal Executive.

Your Federal Executive has faithfully carried out the policy laid down at the 1953 Convention and in addition has found time to work on a number of projects which include bringing to fruition the plans to produce an Australian Amateur Call Book.

Certainly, Conventions are necessary. They enable the problems of the Divisions to be aired in an atmosphere that overcomes the difficulty experienced in interpreting the written word; however, there is no doubt

that the present method of inter-changing ideas on paper as the problems arise clears the deck so that when a Convention is held the Delegates will have only a limited number of contentious items to consider. Thus enabling them to give full consideration to each item instead of having to rush in order to accommodate all the minor items and "evergreens" included in past Agendas.

Conventions are also necessary when major changes in policy are contemplated.

Your Federal Councillor has a very important task—keep him fully informed of your local problems; make him work all the year round; do not assume that he only comes to life when a Convention is held.

Unity in strength. Maintain the integrity and stability of your Institute by supporting the Federal Council, thereby ensuring that the Amateurs' cause and achievements receive the fullest recognition from both authorities and public alike.

FEDERAL EXECUTIVE

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BY TOM ATHEY,* A.L.R.E.

Final Tank Circuit

Page 3

Short Wave Receiver Selectivity Problems and the Double Crystal Filter as the Answer

PART ONE

INTRODUCTION

The designer of short wave receivers has mainly to deal with two problems—the sensitivity and selectivity. This article is a discussion of selectivity questions as far as Amateur Radio is concerned.

We so often hear words nowadays like Q5-er, magnetostriction mechanical filter, crystal filter, single sideband reception, double and even triple conversion, that it doesn't look as if we would be in the position to build a "home brew" receiver which would enable us to compete in DX contests, or to get set from disposals which would be good and modern enough for our purposes. One of those 500 dollar receivers which seem to be ideal if the outstanding features as advertised are true, is also beyond most purses.

We will explain several points which are important, and make some proposals for the home-made receiver, showing that the Ham still can build his own receiver which may suit his job better than any other receiver he may be able to buy for a lot of money. He needs some technical know-how and a grid dip meter, but should have both any how.

T.R.F. Receiver

Looking 25 years back, we tried to fix the selectivity problem with a regenerative detector. It is true that we got quite good selectivity near the resonance frequency. We could receive a 1 μ V. signal well, but if a 10 μ V. signal was even 100 or more Kc. away, we had QRM because the response curve had only a sharp peak close to the resonance frequency, and the impedance of our tuned circuit was, even for very far off resonance frequencies, great enough to give the necessary amplification for a 60 to 80 db attenuated signal.

If the regeneration was not properly (critically) adjusted, we never got stable and satisfactory conditions. An r.f. amplifier stage did improve the far off resonance selectivity to a certain degree, but any tuned r.f. circuit suffered from the same effect just described. So a great number of tuned r.f. circuits would have been necessary, which was impractical.

Sharp Filters

We tried audio frequency tuned filters and resistance-capacity phase networks to improve the selectivity close to the resonance point, but these methods had the same drawbacks as the crystal filter with a single quartz has, because the bandwidth was too small (20 to 100 c/s) for phone reception, and for c.w.

All kinds of interference and noise also caused a loading of this low loss circuit and so even the shortest pulses of background noise and QRM appeared much longer than their actual pulse duration really was. The noise silencer method used in some receivers in front

of the high selective circuit was a help to a certain degree if the noise amplitude was sufficient to cut out the i.f. amplifier and if the tuned circuits before the limiter had a low Q, but usually they were not successful enough compared with the technical effort and the cost.

Image Selectivity Problem, Cross Talk, etc.

The superhet principle offers a convenient way to get any selectivity required. But this turned out to be not so simple as a new-comer might think at first. A highly selective i.f. amplifier can never do the selectivity job alone, so that we may not only receive the station our dial is tuned to. For example, even three good aligned high gain tuned r.f. circuits are not sharp enough on the 20 mx band to prevent local signals from overloading the first mixer stage even if they are about 100 Kc. apart from the receiving frequency. The mixer works no more in the linear range and we get cross talk, which the best i.f. or a.f. filter set-up can never prevent or cure. Harmonics of our own superhet receiver oscillator (not so-called subharmonics of the received transmitter) may be at the mixer grid as a result of insufficient shielding. So we can hear strong 20 mx stations, 40 and 80 mx too.

The response to image signals is another typical superhet trouble. Other signals than those tuned in may be at a frequency which is twice our i.f. value on the other side of the tuned r.f. as our local oscillator lies. If these signals pass the r.f. stages and have a chance to get on to the mixer grid, we will not be able to stop them from passing the best i.f. and a.f. amplifier, because they develop the same i.f. as the desired signal. All these typical superhet troubles gave those old-timers a certain right in saying that the old t.r.f. receiver was not so bad.

Before we blame radio stations for being in the 20 mx Amateur band, it is advisable to have a listen on the 19 mx broadcast band. If we do find this station also on its legal frequency, then we only get this QRM because our 455 Kc. i.f. and not good enough r.f. stages reproduced the image frequency, which shows our receiver is at fault.

We are often after 0.5 μ V. Amateur stations, and 1 Mc. or so higher we find radio stations with 50 mV. signals. To get not more than just the equal signal strength at our first mixer stage from the strong radio station compared with the weak Amateur signal which we have tuned in, the attenuation of the image frequency should be in the order of 100,000 or 100 db. So as not to hear the undesired signal, we need 60 db more image rejection. A rotary beam may often help, but it still looks hopeless if our "famous communication type receiver" promises on 14 Mc. 500, and

BY H. F. RUCKERT,* VK2AOU

on 28 Mc. only 50, as the image rejection ratio.

The single conversion superhet made by Telefunken 10 to 15 years ago, type E52 (Koeln) has an image rejection of 50,000 at 14 Mc. using five tuned r.f. circuits, and a 1 Mc. i.f. Many Ham receivers may show at about 29 Mc. the same station repeated again, which in fact is working at 28.1 Mc. So the simple superhet was not very satisfactory at solving one problem, but giving several new ones in its place.

At frequencies above 10 Mc. the selectivity and effectiveness of the r.f. stages are dependent on the input impedance of the valves used in these stages, not effectively by-passed cathode capacities, inductances, and high grid values are the reasons. Also we know that a mixer stage is producing about four times the noise the same valve would if used as a pentode amplifier. On the other hand the mixer pentode has about four times the input impedance compared with the same pentode used as an amplifier. Valves 6AC7 and EF50 represent only 7,000 ohm input impedance at 30 Mc., so we have to connect the grid to a tap of the coil of the tuned r.f. circuit so as not to lose more gain and selectivity and also to help the signal-to-noise ratio (sensitivity). With not enough gain and noise of its own in the r.f. stages, the mixer would then determine the total receiver noise and sensitivity. This would be absolutely wrong because a good receiver always allows us to hear the noise picked up by the antenna which is especially true at frequencies below 50 Mc.

The Multi Conversion Superhet

The next step forward in receiver design was then the double conversion superhet with two different i.f. frequencies. This method is still only used by a few commercially manufactured receivers, and these receivers are a very popular necessity at Amateur stations.

We can use any frequency as the first i.f. which is high enough to put the image frequency far away from the received frequency to be sure of sufficient image rejection. But this first i.f. should not be so high that we can't build good selective first i.f. amplifiers. This is a point which is too often overlooked. With a wide-band first i.f. at about 5 Mc. to 10 Mc. with less than six tuned circuits and a 50 Kc. second i.f., we will get more image frequencies in our receiver than with a simple single conversion superhet. If in this case a signal appears $2 \times 50 = 100$ Kc. apart from the point where the tuned in r.f. signal is, it will go easily through the first i.f. amplifier and first i.f. stages, so we can be sure now about the image signal mixed in the second mixer where we can never remove it. I.f. crystal filters or a.f. filters do not change these conditions.

* 118 Evaline Street, Campsie, N.S.W.

With harmonics of the two local receiver oscillators we can expect to get a lot more trouble and undesired signals than we had before if we don't select suitable i.f. and oscillator frequencies. We also should select a first i.f. where no commercial station works, and we should make the second oscillator adjustable to be able to tune commercial stations out if they still come through in one or the other way described above.

For the 85 to 105 Mc. high fidelity f.m. receivers, which are very popular in U.S.A. and Germany, 10.7 Mc. is a standard i.f. value. This frequency is also used by Hams for v.h.f. superhets. 2 to 5 Mc. may be a range where we can always find a suitable frequency for the first i.f.

The same thoughts indicate that we have to use triple conversion if we want to operate with a 35 to 100 Kc. Q5-er. First i.f. 10 Mc., second i.f. 455 Kc., and third i.f. 50 Kc. This is the best overcome the image frequency problem, and we have to use more than three tuned circuits at all these i.f. ranges. If we have a.v.c. on this amplifier we must not use i.f. filter capacitors with less than 50 pF, so as not to detune the filter circuits too much by the grid-cathode capacity which varies by the movement of the space charge as a function of the a.v.c. voltage.

Stages of a Modern Communication Receiver

With this basic knowledge and experience, our image-frequency-free Ham superhet may have the following stages:

1. Two r.f. stages with low noise valves which also should have a high input impedance like the type 6AK5. Valves like acorn types or, on the other hand, a 6AC7, EF50, etc., only fulfill one of the two important requirements, that is why they are outmoded.

The gain of the r.f. amplifier must be so high that the receiver noise is only determined or limited by noise of the first r.f. valve mainly, and by the way of matching and coupling, plus tuning of the first tuned circuit and antenna. That also means that we can now use any number of frequency conversions we want for selectivity reasons without affecting the receiver noise figure or sensitivity, provided we do not operate stages regenerative (or nearly oscillating) or with more gain than is useful.

We must not have so much gain in any of the i.f. amplifiers that we hear the noise of the first or second mixer; this does not improve the sensitivity, but increases only noise and signal and is not nice to listen to. The same applies to excessive a.f. amplification.

So as not to affect the noise figure we should only use a.v.c. at the r.f. stage if S9 plus signals are coming in, which may cause cross talk or, on the other hand, if the mixer may be overloaded, and then one-third of the a.v.c. voltage applied to the r.f. stages may be enough to achieve the desired results.

The r.f. selectivity must be good enough not to let through 50 mV. signals on the image frequency of the first i.f. Three high Q, well shielded, and accurately aligned tuned r.f. circuits should do the job satisfactorily if each coil has an iron slug and a parallel ceramic disc-type trimmer with a positive temperature coefficient of capacity.

Other trimmers are usually not mechanically stable and climate proof enough.

2. The first mixer may have a separate oscillator and usually no a.v.c. for stability reasons. Too much a.v.c. at the front end reduces the mutual conductance of the valves, increases the valve noise and even strong signals may be received with a background noise of the receiver in this case. It is important to have the right oscillator voltage to get enough mixer gain and to operate this stage with not too much noise. Pentagrid converters may be used if the highest frequency is about 30 Mc. and two good r.f. stages are employed.

3. The first i.f. should be between 3 to 5 Mc. to help the rejection of second i.f. images. We need one amplifier stage in front of the second mixer and two filter groups of three to four tuned circuits, each critically coupled and very well shielded so that the signals can't bypass them. These should give sufficient selectivity so as not to let through image frequencies of the second i.f. which will go easily through the r.f. tuned circuits.

The gain of this stage should be just as high as to compensate for the coupling losses in these filters. Shielding is more effective if we keep the signal low until we have highly selective circuits. A.v.c. should be used to 100% here as expected earlier (not too small filter capacitors).

4. The second mixer and oscillator may be designed similar to the first one. The oscillator frequency may be adjustable to set the dial at the correct value if necessary or to shift a few kilocycles if a station should appear on the first i.f. Care should be taken by selecting the right i.f. and oscillator frequencies, providing good shielding, and most importantly, operating the oscillator with a not-too-great harmonic output so that strong combination frequencies are not generated by the two oscillators, causing other image frequencies inside the receiver.

5. The second i.f. amplifier may have two valves with variable μ and not less than 9 (3 x 3), better 12 (3 x 4) tuned circuits. For c.w. reception, the circuits may be critically coupled and working on the same frequency, whilst for phone reception, staggered tuning and closer coupling may be advisable to get the required bandwidth. The usual simple i.f. filters have neither the required selectivity, nor the desired flat top of the resonance curve.

There are three ways known now to achieve the requirements outlined:—(a) Q5-er, (b) mechanical electrostatic filter, or (c) the double crystal filter.

We will compare the three methods later and see which way is the most convenient for those of us who are going to build their own receiver for c.w. and phone reception. The well known single crystal filter is no longer the best answer to our c.w. reception problem as described earlier.

6. A 35 to 100 Kc. third i.f. amplifier, also called "Q5-er", is not much different as the amplifier just discussed. We need an additional third mixer and about two stages with another 3 x 3 or 4 x 4 i.f. tuned circuits. The signal amplitude is already so high that noise

questions are no longer to be considered. We also should keep in mind that the reduction of the bandwidth by a factor nine reduces the amplitude of the noise by a factor three. That means we can use now three times the amplification to get a stronger signal and the noise will not be higher than it has been before the reduction of the bandwidth. The other stages of the receiver have no influence on the sensitivity or selectivity, therefore we will not discuss these at the moment.

Correct Frequency Response Curve

In about two years we will come closer to the next maximum of sun spot activity and we can expect a vast increase of powerful phone stations, mainly as the result of more effective antennae. To be still among those who can enjoy our hobby, we must now build our receiver so that it has the nearly the well known ideal rectangular shaped i.f. response curve.

It has already been mentioned that we require for c.w. only about 100 to 200 c/s bandwidth and not less, but a detuning from one of the response curve corners of about 1 to 2 Kc. should result in a signal attenuation of something like 80 db on both sides.

We know that our old filter with a single crystal cannot fulfil these requirements. The peak bandwidth will be too small so that the crystal probably will tend to ring and the maximum c.w. response has to be reduced. Also the response curve may not be steep enough on one side. To reduce the trouble with QRM and to make it easier to have 100% phone contacts, we have only one alternative, that is to make the response curve of the receiver so that we receive the carrier close to one corner of the response peak and only one sideband. To change over from one to the other sideband to get away from interference, the curve should have a flat top—flat within 2 db for about 3 Kc.

This would allow a high quality phone transmission with only 3 Kc. bandwidth. The selectivity should be adjustable for phone reception down to 1 Kc. and for c.w. reception to about 200 c/s.

The receiver gain should be constant so that a readjustment of the S meter and volume control may not be necessary when varying the bandwidth.

Most of the popular Q5-ers are also not very suitable to do this job. Their resonance curve may have quite sufficient steep skirts, but there is usually only one peak in the centre of the bandpass and no flat top. In this case, we still tune the station in according to the S meter reading, that means the carrier is in the centre and we have again double sideband reception with a twice wider receiving band for the same readability. The possibility of interference is much greater because we tune both sidebands in and we cannot choose one sideband which may have less QRM. If we reduce the bandwidth we will have difficulties in understanding the phone transmission, we will lose the higher tones of the modulation, a good DX modulation should contain. We cannot tune our oscillator on such a receiver so as to receive only one sideband because the carrier would be too much attenuated, probably 10 db down or more. The voice would then sound like that of a heavily overmodulated

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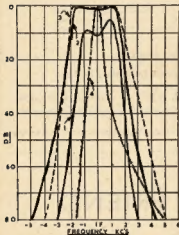
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transmitter. Even with a lot of tuned circuits and several valves, it is not easy to get near enough to the desired effect.

Special Method

An interesting but quite complicated and costly way out of this problem was described in "QST," March, 1953, p. 23. The third i.f. amplifier or Q5-er was divided in a carrier narrow band amplifier for c.w. only and an additional sideband (single sideband) channel. The sideband could be selected by changing the crystal oscillator. The sideband amplifier had a saddle of about 6 db and only 2 Kc. bandwidth. The combined bandwidth of both channels was about 3 Kc. for one sideband plus carrier. The graph shows the response curve of the sideband amplifier alone as curve No. 1.

Response Curves of Different
I.F. Amplifiers



1. Nine tuned circuits at 50 Kc. "QST," March, 1953. A.R.R.L. design, sideband channel.
2. Magnetostriction filter at 455 Kc. Collins 75A III. "QST," February, 1953.
3. Double crystal filter, 3.5 Kc. flat top at 353 Kc. I.F. Position wide, a.v.c. on.
4. Double crystal filter, 0.4 Kc. at 353 Kc. Position sharp, a.v.c. on.

This Q5-er, built by A.R.R.L., had the same skirt selectivity as the best commercially made receivers we know about. The disadvantages of this receiver type are that the bandwidth is not continuously variable. The carrier and sideband gain has to be adjusted separately, and similar difficulties occur with the a.v.c. Six i.f. amplifier valves and 20 tuned circuits at 50 Kc. had been used, which does not look like an easy way to solve our problem.

Many of us got a different opinion about what a good modern receiver should be able to do when Collins offered the mechanical magnetostriction filter. There was the rectangular response curve we had been looking for so long. The curve No. 2 of the graph shows the frequency response of the Collins mechanical filter, built in the 75A III. Amateur band receiver.

This double conversion superhet has a bandwidth of close to 3.1 Kc. at 455 Kc. second i.f. The receiver uses only a not-too-complicated double conversion superhet and not more than one additional valve to compensate the loss in gain the filter causes. But also, this filter does not allow us to vary the bandwidth unless we can plug in a 1 Kc. or 800 c.p.s. filter. This is not convenient, rather costly, and for us anyhow, out of the range to get or to build it at home.

Quartz crystal lattice filters are quite common in single sideband receivers and exciters. But how to get so many special crystals? And if we can obtain the required crystals, we will find soon that many recommended circuits have one or the other drawbacks we men-

tioned before. Usually the well known communications receivers do not use these methods.

(to be continued)

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1953 VK-ZL DX Contest Results

The extremely poor DX conditions due to low sunspot activity is reflected in the small number of logs received for this year's VK-ZL DX Contest. According to the experts, however, conditions should start to improve rapidly from now on and we can look forward to very much more activity for next year's Contest.

A lot of confusion still appears to exist, particularly among overseas stations as to the correct method of scoring and making out logs. Very few of the logs received—VK, ZL and overseas—were correctly filled in, the majority of stations not bothering to work out their scores. Had the committee stuck strictly to the rules and disqualified these entries, there would not have been enough left to make a Contest, so all logs submitted were completed and scores calculated. This necessitated a tremendous amount of work which should not be necessary.

Last year the top scorers in ZL and VK were within a few points of each other, but this year the ZL boys really worked hard and are to be congratulated on their magnificent effort. ZLIAH, the top scorer, operated for eighteen hours to make 273 contacts for 22,576 points in the c.w. section, an average of four minutes per contact—7, 14 and 21 Mc. bands being used. No contacts were recorded by any station on the 28 Mc. band.

AUSTRALIA

C.W. SECTION

| Open— | | Points |
|--------|------|--------|
| VK2GW | 3406 | VK3PG |
| VK3XK | 2852 | VK4FJ |
| VK4RT | 2794 | VK3ANJ |
| VK3FO | 1792 | VK5WO |
| VK3AHH | 999 | VK2JY |

| 7 Mc.— | | Points |
|--------|-----|--------|
| VK2GW | 954 | VK3AHH |
| VK4XJ | 650 | VK3AHH |
| VK3XK | 224 | VK2YC |
| VK5FO | 198 | |

| 14 Mc.— | | Points |
|---------|------|--------|
| VK2GW | 2511 | VK3RX |
| VK3AHH | 900 | VK3AHH |
| VK3XK | 882 | VK3ANJ |
| VK3AZW | 665 | VK4SF |
| VK5FO | 663 | VK2ACN |
| VK3PG | 320 | VK3PL |
| VK2IC | 275 | |

| 21 Mc.— | | Points |
|---------|-----|--------|
| VK2GW | 242 | VK3PG |
| VK3XK | 84 | VK5FO |
| VK3AHH | 42 | |

PHONE SECTION

| Open— | | Points |
|-------|-----|--------|
| VK4SF | 925 | |

| 14 Mc.— | | Points |
|---------|------|--------|
| VK4KS | 3510 | VK5LC |
| VK5MS | 1898 | VK3XK |
| VK4SF | 824 | VK5WO |
| VK2AOU | 405 | |

| 21 Mc.— | | Points |
|---------|---|--------|
| VK4SF | 1 | |

NEW ZEALAND

C.W. SECTION

| Open— | | Points |
|--------|-------|--------|
| ZLIAH | 22576 | ZL3JA |
| ZLIMQ | 10985 | ZL3GQ |
| ZLIBY | 9788 | ZL1BY |
| ZLIAHX | 7980 | ZL1BY |
| ZLIAHX | 6720 | |

| 15 Mc.— | | Points |
|---------|----|--------|
| ZLIBY | 63 | ZLIMQ |

| 7 Mc.— | | Points |
|--------|------|--------|
| ZL2BJ | 3168 | ZLIAHX |
| ZLIBY | 1992 | ZL1JA |
| ZL3JA | 825 | ZL2IQ |
| ZLIMQ | 490 | |

| 14 Mc.— | | Points |
|---------|------|--------|
| ZLIBY | 6903 | ZL3A |
| ZLIMQ | 3040 | ZL3CP |
| ZL3JA | 2310 | ZL1JA |
| ZLIAHX | 2190 | |

| 21 Mc.— | | Points |
|---------|-----|--------|
| ZLIBY | 828 | ZLIAHX |
| ZLIMQ | 560 | ZL3JA |

PHONE SECTION

| Open— | | Points |
|--------|------|--------|
| ZLIMQ | 1800 | ZL3GQ |
| ZLIAHX | 1780 | |

| 7 Mc.— | | Points |
|--------|----|--------|
| ZLIMQ | 16 | |

| 14 Mc.— | | Points |
|---------|-----|--------|
| ZLIMQ | 696 | |

| 21 Mc.— | | Points |
|---------|-----|--------|
| ZLIMQ | 144 | |

OVERSEAS

C.W. SECTION

| North America | | Points |
|---------------|------|---------|
| Open— | | |
| W6BYB | 2025 | W5TFD |
| W8JN | 924 | W2EQS |
| W2WZ | 799 | 14 Mc.— |
| W6ATO | 752 | VE3ADM |
| W2ICE | 24 | W6NZW |
| W2CVV | 9 | VE7ASU |
| 7 Mc.— | | |
| W6MUR | 648 | WSOLG |

| Europe | | Points |
|--------|------|---------|
| Open— | | |
| PA0UN | 1116 | DL3SZ |
| PA0VB | 120 | DL9RK |
| PJ2AJ | 12 | F9RM |
| SM5ANY | 330 | 7 Mc.— |
| GI5RI | 1292 | DL9TJ |
| OK3MM | 570 | 854AX |
| OK1MB | 215 | 14 Mc.— |
| Y03RD | 30 | SM3AKM |
| Y03RF | 30 | SM5BCS |
| HE8RDX | 171 | SM7AVA |
| HB9MU | 152 | SM3HC |
| DL1DX | 544 | LA4KD |
| DL7AA | 507 | OH2MQ |
| DL1FE | 288 | OZ1PH |
| DL7BA | 242 | OH1PW |
| DL6DF | 120 | DL7EK |
| DL7DF | 104 | |

| Europe | | Points |
|--------|------|---------|
| Open— | | |
| PA0UN | 1116 | DL3SZ |
| PA0VB | 120 | DL9RK |
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|--------|------|---------|
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| DL7AA | 507 | OH2MQ |
| DL1FE | 288 | OZ1PH |
| DL7BA | 242 | OH1PW |
| DL6DF | 120 | DL7EK |
| DL7DF | 104 | |

| Asia | | Points |
|---------|-----|-----------------|
| Open— | | |
| JA1CR | 385 | 14 Mc. (Cont.)— |
| VS2DQ | 432 | JA2AB |
| 14 Mc.— | | |
| VS1CZ | 460 | JA1CJ |
| JA3EB | 430 | JA2AB |
| JA8AA | 330 | JA1DM |
| JA2WB | 280 | JA1AL |
| JA1FA | 232 | JA1KF |
| | | 21 Mc.— |
| | | JA1DM |
| | | JA1CO |

| South Africa | | Points |
|--------------|-----|--------|
| Open— | | |
| ZS1H | 160 | |

| South America | | Points |
|---------------|-----|--------|
| 14 Mc.— | | |
| CE3RE | 252 | |
| 21 Mc.— | | |
| T2TG | 80 | |

| Oceania | | Points |
|---------|------|--------|
| Open— | | |
| FK8AO | 1206 | FK8AC |
| | | KH6IJ |

| PHONE SECTION | | Points |
|---------------|-----|--------|
| 14 Mc.— | | |
| PI17 | 147 | SM3WL |
| PA0NU | 48 | SM6VY |
| ON1PN | 2 | F9RM |

| Europe | | Points |
|---------|-----|--------|
| 14 Mc.— | | |
| PI17 | 147 | SM3WL |
| PA0NU | 48 | SM6VY |
| ON1PN | 2 | F9RM |

| South America | | Points |
|---------------|-----|--------|
| 14 Mc.— | | |
| YV5AP | 5 | T2TG |
| HC1MB | 270 | |

| Asia | | Points |
|---------|-----|--------|
| Open— | | |
| VS1EV | 552 | JA1AL |
| JA1CO | 60 | JA1FA |
| KA7RC | 639 | JA1KF |
| 14 Mc.— | | |
| JA2WB | 162 | JA1DM |
| JA8AA | 147 | VS1CZ |

| Oceania | | Points |
|---------|-----|--------|
| 14 Mc.— | | |
| KR8CA | 324 | |
| VR3RJ | 324 | |

| India | | Points |
|---------|----|--------|
| 14 Mc.— | | |
| VU2RC | 12 | |

LISTENERS' SECTION

| America | | Points |
|---------|-----|--------|
| OES-403 | 455 | |
| OES-196 | 253 | |
| OES-117 | 180 | |
| OEL-519 | 45 | |

| Sweden | | Points |
|----------|----|--------|
| SM5-2591 | 24 | |

| New Zealand | | Points |
|------------------|------|--------|
| ZL-105 | 1120 | |
| R. W. Gray (ZL3) | 2418 | |

| Australia | | Points |
|------------------|------|--------|
| N. L. Dash (VK2) | 2212 | |
| BERS-193 | 1048 | |

CHECK LOGS

Check logs were received from G14RY, G69, and K6AFH.

New South Wales North Coast Floods, 1954

Amateurs on the North Coast of N.S.W. have on a number of occasions since 1948, provided communication during floods when normal circuits have failed due to flood damage to the telephone and telegraph lines. They have been instrumental in providing links to the outside to arrange relief for communities in distress and supply the first news of devastation and loss of life.

In February of this year they recorded their greatest achievement when Radio Amateurs in a wide-spread operation performed the most extensive emergency net working ever recorded in the Commonwealth.

The damaged area extended from the Queensland border south to Newcastle, a distance of over 350 miles. Twenty-three lives were lost and damage will cost many millions of pounds to repair.

Stations from many locations in the stricken area operated for periods from 4 p.m. on Saturday, 20th February, to 10 p.m., Tuesday, 23rd February.

Amateurs relayed the first information of devastation and requests for relief from five centres that were extensively damaged—Tweed Heads, Murwillumbah, Casino, Lismore and Kyogle. Some stations were active for longer periods relaying messages from "ducks" providing relief in the area.

The whole operation reflected great credit on the operators participating, and the hobby in general, and authorities within Australia and New Zealand co-operated with Amateur Stations to ensure the effective operation of the nets.

The whole operation was so extensive and so many channels were in use at different times that it was difficult to obtain a complete story of the proceedings.

Traffic was handled mainly on the 7 Mc. band by day, and the 3.5 Mc. band by night, from the flooded areas via the W.I.A. Emergency Net and VK2WI and to various other Amateurs in Sydney and Newcastle.

One net ran practically continuously on 7002 Kc. handling traffic to and from VK2AA—official P.M.G. station—at Middle Head, Sydney. The G.P.O. emergency frequency of 5390 Kc. was also in use.

A considerable amount of traffic handled was passed cross-band from 3.5 and 7 Mc. to 6815 and 3252 Kc., the N.S.W. Police Department's emergency frequencies and VKG Sydney and VKG3 Newcastle. In other cases Amateurs operated exclusively on these Police frequencies in areas where suitable xtals had been left with the local Police authorities.

Propagation conditions during the operation were poor and skip caused interference at times. The low level of static on 3.5 Mc. during the evenings did assist the net operation.

Stations operating from the affected areas included Bill Campbell VK2ZY, Norm Carpenter VK2RK, Murwillumbah; Steve Grimsley VK2VK, Tweed Heads; Charlie Miller VK2ADE, Ron Martin VK2AHI, Casino; Allan Simpson VK2ASO, Kyogle; Dr. Tom Hewitt VK2LH, Lismore; Roy Berry VK2NY, Peter Rudder VK2TB, Terry Spence VK2AJS, Bill Allwork VK2OE, Bob

Wilkins VK2WQ, Geoff Switzer VK2SR, of Grafton; Jack Gerard VK2ADN, Bill Grant VK2AWG, Coffa Harbour; Noel Hansen VK2AHH, Kempsey; Peter Alexander VK2PA, Port Macquarie; Bill Eagling VK2AEY, Taree; Alex Goldie VK2TG, Bellingen; and Crieff Retallick VK2XO, Raleigh. Some of the above stations operated for long periods, others were forced off the air by floods, while the unfortunate few were so badly flooded that they could not operate at any period.

Messages were handled for dozens of public utilities, while most of the traffic covered Police messages, P.M.G. telegrams, and Press.

The operation commenced at 4 p.m. on Saturday when VK2ADE, of Casino, opened on 7 Mc. requesting a link with Sydney as normal communications were affected.

For some hours previously Amateurs on the North Coast were heard checking their equipment as it was anticipated that official circuits would be affected.

The request was relayed to VK2WI by telephone by Graham Hall VK2AGH and Andy Kerr VK2AX. Jim Corbin VK2YC then opened VK2WI, official W.I.A. station, to provide the Sydney link for clearing traffic. Soon afterwards VK2LH, of Lismore, joined the Net as normal communication to the town had been disrupted.

BY WM. MOORE, VK2HZ

Syd Smith VK2APS, of Tamworth, also opened as Police Headquarters for the flooded area is located in that town. These stations assisted by others, at one stage ZL2HV, handled many graphic and important messages.

The frequency was changed to the 3.5 Mc. band in the evening and Dr. Alex Dan VK2ABU took over the operation of VK2WI assisted by State President VK2YC.

At 11 p.m. VK2LH lost the local power and as he had lent his mobile equipment to Alf Webb VK2UC, to use in another part of Lismore, he was forced to close. During the many blackouts experienced during the evening traffic from Lismore was diverted to Casino by telephone and relayed by VK2ADE.

At 2 a.m. Sunday the city end of the Casino link was taken over by Police Station VKG. VK2ADE operated on Police frequencies at one period but later returned to the Amateur bands.

On Police frequencies were also Port Macquarie and West Kempsey. These stations were in fact Peter Alexander VK2PA and Noel Hansen VK2AHH, the North Coast W.I.A. Zone Officer of Kempsey. They were using their own Amateur equipment on Police frequencies and covering vital points.

VK2PA was assisted at times by Lew Smith VK2AWS.

On the Sunday morning activity increased on the Amateur bands. At one stage three channels—7002, 7020 and 7050 Kc.—were in use. VK2AJS, of Grafton, was active passing important railway traffic via VK2AYP in Sydney, later he handled some P.M.G. traffic.

Also operating from Grafton at various times were VK2NY, VK2OE, VK2TB, VK2SR and VK2WQ, but power failures were frequent in the town and VK2NY's and VK2TB's homes were flooded.

VK2AA, official P.M.G. station at Middle Head, was busy on 7002 Kc. directing telegrams to VK2AHI, at Casino, who operated up to 20 hours per day taking and relaying traffic. At one stage when power failed he operated using batteries.

VK2XO from Raleigh was badly flooded but was active with 2 watts to a Type A Mk. III, and handled traffic to Sydney. At one stage he was reported to be pushing a bull away from the verandah

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with a broom. The bull was swimming around the house.

In Bellingen, VK2TG was transmitting at times but lost the town power supply early in the operation. He and Percy Sara VK2QV then placed a No. 11 on the band.

From Coff's Harbour VK2ADN and VK2AWG appeared at various intervals, as did "Dorrigo," the latter transmitting messages to VK2ASJ in Newcastle for relay to VKG3.

Hallina was represented by "VK2N" an operator who obtained a transmitter from some local authority and operated it on Police and Amateur frequencies. Before closing he transmitted a message of congratulations to the W.I.A. Emergency Net for the assistance rendered.

The first news of the devastation in Murwillumbah was transmitted by VK2RRK, the town had been out of communication with the outside for 18 hours. Norm passed press to Max Sobels VK2OT of Newcastle who brought a reporter to the shack from a Newcastle paper. Later he handled considerable traffic from VK2AA. Previously VK2ZY of Murwillumbah was also active but was isolated from the town proper by flood waters. He was operating with six inches of water over the shack floor.

VK2VK transmitted the first news of Tweed Head's damage in a press message to VK2AGH in Sydney. It was the initial information supplied from that town.

VK2LH of Lismore was again active on the Sunday evening but his medical duties did not permit any extensive operating.

From Kyogle first information was broadcast on the Monday by VK2ASO, who also handled a large number of P.M.G. telegrams.

VK2AEY of Taree, at the farthest point south, was active on both Amateur bands and Police frequencies.

VK2PA was also operating on Amateur bands and directed weather information via VK2EL Sydney for relay.

Valuable work was performed by many stations in keeping the emergency frequencies clear.

In New Zealand this work was performed on the 3.5 Mc. band by the N.Z. A.R.T. Emergency Corps, after an official request was made to monitoring station ZL4OA. Jim Edge VK2AJO was also officially requested to act as guard station in view of his excellent signal on the 3.5 Mc. band.

The last net operating VK2ADE/VK2APS/VKG was officially closed at 2200 hours on the Tuesday, when VK2AJO relayed from VKG to the two N.Z. guard stations then operating, ZL2IJ and ZL3JT, a message to the N.Z.A.R.T. from the Police Department thanking them for their assistance in keeping 3725 Kc. clear.

Chas VK2ADE then, as he termed it, "pulled the big switch," after nearly 78 hours of continuous emergency working, a fine record of public service.

Although it is difficult to differentiate between the valuable working of so many stations, it is felt special mention should be made of the service rendered by Chas Miller VK2ADE and Ron Martin VK2AHI, of Casino; Tom Hewitt VK2LH, of Lismore; Steve Grimsley

VK2VK, of Tweed Heads; Norm Carpenter VK2RK, of Murwillumbah, and Stan Simpson VK2ASO, of Kyogle, who all handled considerable traffic from the worst affected area.

As mentioned previously, many stations assisted, it was impossible to record all calls, but some stations heard were as follows: VKs 2AVG, 2WT, 2AX, 2AGH, 2ACP, 2AJO, 2AQH, 2QQ, 3BH, 3TO, 2PQ, 2ARG, 2ZX. Assistants in the various shacks played an important part in some cases. Police officials were continuously on duty.

Several valuable lessons were learnt from the operation. One was the need for transmitters to be flexible enough to operate on the any possible frequency, on or around the 3.5 and 7 Mc. bands. Another was the need to limit the degree of final relay of messages, too many listeners were telephoning messages heard and causing confusion. Messages should only be relayed if they are directed to stations and then by the station concerned.

If the message heard is in the form of a general broadcast, then, and only then, should action be taken.

Publicity for the work of Radio Amateurs in the emergency was very limited in the daily press.

A.B.C. and Commercial Broadcasting Stations did mention the efforts in their news sections.

The A.B.C. presented an excellent review of the nets' operation on the following Saturday.

The work of the North Coast Amateurs in this emergency can be added to the already long list of public service rendered by Radio Amateurs in this country, and operators throughout the Commonwealth congratulate them on a job well done.

OLD-TIMER PASSES

During the winter of 1932-33, Radio Amateur K7UT, in Alaska, was in contact with another Amateur in New Zealand. Unnoticed by K7UT, a small coke stove began to fill the room with deadly carbon monoxide gas fumes that insidiously and slowly dimmed his consciousness into lethargy, then torpor. The New Zealander, operating from a lonely lighthouse, was alarmed to notice the Alaskan's signals falter and finally stop. Sensing trouble he called, in a vain hope, for any other Amateur station that might be on the air in Alaska.

The fates were kind that night and he contacted another station, resulting in K7UT being found unconscious by the rescue party who arrived in time to save his life. The K7UT in that now famous episode was Clyde de Vinna (W6OJ), chief cinematographer with the M.G.M. motion picture expedition encamped in Alaska for the filming of "Eskimo," and whose death was announced recently in America.

His "White Shadows of the South Seas" secured an Academy Award for cinematography, and "Trader Horn," "Treasure Island," and "Eskimo" were outstanding films of the period that saw W6OJ "operating on location" under such call signs as FK6CR, FK6BAM and K7UT.

Several old-timers in VK will remember Clyde, and also it will serve to remind the new Hams that, believe it or not, Ham Radio in those days was as exciting and romantic as it is today—v.h.f. notwithstanding. Attention Gordon VK5XU. You beautiful!

—VK5PS.



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Amateur Radio, April, 1964

ZLJJA is at present not in a position to carry out his planned trip to Tokelau Island (see "A.R." 12/53). Nevertheless, Harold will keep the project in mind. Further details will be published in these notes as they become available.

VR3A is exVR8D Ray's call sign has officially been changed as from 1/3/54. QSL cards may be sent directly via VK3OM (see "A.R.M." 3/54) thanks CX, 3OM. VR8A is ex-GRUBU and ex-GCEBU. LUSEL is looking for VKK6Z contacts on 3.5 McI around 0830-0900Z (thanked ZL1CZ). Chas IAC reports that he now is also active on 21 Mc HS1D operates 7, 14, 21 Mc. Ex-VR3A is ex-VR3A. Keruelei Island (FR3A) 2A2J SATN. The operator is ex-FR3A (1981-53).

Christmas Island has been kept on the map by Dave Laling ZC3AB, who is ex-VK4DL and ex-VK3DE. After arrival last year, Dave used ZC3AA. John Marsland's call sign, until his own call sign was issued, 3AB will leave Christmas Island in April, 1994, and will not return. His station uses 40 watts input to an S15, the modulator being another 815. A full-wave antenna serves as sky wire. Dave is officer-in-charge of island and communications as well as the commercial station VS1A. All 1994 will be confirmed by QSL cards (thanks BERS 193 for the above information).

ZCLAB—Dave Laing, Radio VSM, Christmas Island, via Malaya.

HL1AA-236 Chunglimdong, Seoul, South Korea.
HS1D-M/Sgt. James D. Fry, M.A.A.G. Box "B,"
A.P.O. 74, C/o, P.M. San Francisco,
Calif. 94114

ZK1BI—Ray Lowry, Rarotonga, Cook Islands.
KC5AA—Dick Hatcher, Radio Station, Yap
Island, Western Carolines.

5A3TR-Via W6FYB.
5A3TU-Via W6PCS

Here QSLs arrived at ZAHB: SP2KAA,
4X4BR SA4TG, XW8AA, 4S7XG, 3CX, ET2NG,
YK1AH, 8ATN; CR9AH, TF5TP, W2ZXM/MM;
6EJ, 4C3Z, TQ0AB, YL2R, 4U0A, 4U0B,
4U0C, 4U0D, 4U0E, 4U0F, 4U0G, 4U0H,

5CE: ZC858 ZC8VR, IIRC/Trieste, KG4AO;
5HE: DU7SV, VU2BH, OQ5GN, FA3VV, CN8CS;
7DZ: VK1HM, MP4QA, MP4KAC, BEN8198;
ZC3AB, FA8VN, HB1JJ/HE, KV4BB, 3AHB;
HH2FL, FIBAT, VESTO 3.5 Mc.).

This month's thanks go to s.w.i. BERSI9 and VKs IAC, IFA, 3QL, 2AFE, 2AHH, 2ALJ, 2AMB, 2APL, 2AQJ, 3CX, 3IM, 3KB, 3KR, 3FA, 3TE, 3TX, 3ZA, 3ZO, 3ADI, 3ADM, 3ADW, 3AQJ, 3ATN, 4SE/M, 4TN, 4XJ, 5CE, 5HU, 5RG, 5RK, 5WT, 7DZ, 1LZ, 9WZ, and 9YY.
Good hunting till next month!

The usual monthly meeting was held on 5th February, but owing to the fact that the date of the meeting coincided with that of the State Ball given in honour of Her Majesty, traffic conditions made attendance barely possible.

On 31st January the V.H.F. Group held their Country Field Day which was originally scheduled for October. Despite the very bad weather conditions, the group managed to make use of the field. Furthest from Sydney was 2JW Mt Canberran, 2AJZ was at Mt. Piddington, 2JY was at Mt. Piddington, 2JX was at the Summit, 2ANF went to Mt. Tomah, 2ABO went mobile to Mt. Grey but was unsuccessful and came back to Mt. Gibraltar. 2QW and 2OAA were also mobile. Unfortunately, the 3G and 3H scores are not yet available. However it would appear that 2AJZ made the greatest number of contacts, more than 3G and 3H. 2JW from Sydney, and 2ANF, 2JY and 2JX from Canberran, made the longest distance contact. During the evening the V.H.F. 2WI broadcast was made. The 2WI broadcast was made at 100 watts per medium of RAN/P, picked up by 2AGY in Newcastle, relayed to the Newcastle area on 20m. 2JHE did the same thing for the Sydney area. Reception was good for 2JHE but poor for 2WI as far west as Orange, thus giving the 2WI V.H.F. broadcast probably its largest coverage.

On 16th February the Group conducted a nocturnal hidden tx hunt within the confines of the metropolitan area. The tx was located at Black Charlie's Hill (near Bankstown Aerodrome). As was to be expected, first in was 2HL. He was accompanied by Charlie 2NP. Second in was 2AJZ and 2AJA who advanced on foot, blazing a trail for 1WJ in the Holden. At various intervals five other parties arrived.

ZIL has bought IAH's tower and Harry RAJZ has bought the tower and beacons sported by Jack Challenger. Roy JHO has found it impossible to make any contacts from Hart's Hollow without his three-over-three at its customary height. EDI ABRB is back on the air again and has been in the air for a day and a night sending out distress calls recently when the Georges River broke its bank and bowed under and around his shack. Arch JGU, of Canberra, has now worked quite a number of the Sydney stations and is at present playing around with the idea of a radio link between the two stations to Inverell. JAH was better on twenty-

where"). His move has left a gap in the Newcastle v.h.f. circles. Newcastle has also lost ROT at least during the week days, Max having been transferred to the Technical College at Peter-

The first reported use of transistors among the v.h.f. population is by Con 2LZ. Con is using a pair of them in a two stage preamplifier which is of midlevel dimensions. Con also reports that he cured r.f. feedback troubles—which were severe—by bypassing the input circuit. Quite a few of the v.h.f. shacks have been visited by Rex 8PU who has been voted by the Sydney sans a real v.h.f. man.

Notes this month are compiled by the V.H.S. Group first emergency scribe, SLM, due to the unavoidable absence of Jim SABA in temporary retirement whilst the new QTH is under construction, and Jim will be back as soon as the writing room has been completed. The meeting was mainly in the form of a Q&A session at night and with the attendance of 20 it can be considered one of the most successful evenings for some time. SLM brought in his 200 MCW and described it in detail to the meeting. SBA and SPL gave descriptions of their 144 and 200 MCW's and spoke on co-axial lines for 144 and 200 MCW's.

The first 1954 V.h.f. Field Day found 3ADU at Aliona, 3YS at Macedon, 3LN Keller, 3VF Pretty Sally, and 3JO at Arthur's Seat, which is a better muster of portables than the two previous occasions.

The February C.D.N. night, for the first time, took the form of a Fox Hunt Two "bounds"—JVS and JADU—each made two catches of the fox car, ENH. It proved an interesting and instructive evening for the March hunt. Keep 11th April available, it's the V.h.f. Field Day for April and all portables are very welcome to participate. The following are the current lists of guns with 3MB, 3PL, 3ED, 3GQ, 3ALY, 3YM, 3AFJ, 3ALK, 3ALH, 3AHC, 3AAP, and 3ATK all very active. SED and JALY have changed to p.p. 7196 for p.p. 7198. In view of considerable improvement in reception both stations are using eight mid-wave in phase.

On 2 mx, JAYB has just finished a 60 ft. tower at Macedon, a stacked array is to take pride of place on top. Ray 3ATN reports many excellent openings on 6 mx to VK4 and reports 4BT at 57 when mobile with an input of three-quarters of a watt.—3LN.

I notice that "CQ" has reintroduced a better and more elaborate "V.h.z.-U.h.z. New" Alert with the general jottings of Ham activities, the section now contains much useful technical information. The Cubical Quad receives honorable mention in January, 1954, issue—using the folded dipole technique with a double turn of No. 12 gauge copper and a reflector 9 inches behind it. According to the authority it "has been taken from the literature" and the parameter which make it ideal for d.s. work is 2. m.v.

Hughie SBC has his 18 element facing Adelaide, 50C with gear from Tom 3TL. On Saturday, 27th February, Hughie called SRO on the radio and having established contact, then contacted the 50C and 3TL. 3TL then indicated that a very weak carrier could be heard by both Col SRO and Keith SMT. About half an hour later, at 2130 hours, 3TL 6HD appeared and, after a short signal exchange, advised that this reported 55. Unfortunately at the River end, Hughie and Tom were trying with indifferent success to devise a means of "keying" the SBC552A tx, finally resorting to the use of a 50C 500W transmitter for identification purposes. During the same week-end, Hughie was able to confirm the contact by further efforts, but the best received from

Tom, James, and I were, accordingly, therefore, Remnick is not such a good place for reception!" with 10 watts and a bi-directional beam the Adelaide station was able to receive the signal. There is a higher noise level at Remnick than at SRNK and Tom thinks that he will have to be content with hand working, not having very much of a margin. I should have been rather puzzled about it! but the fact remains.

Further reports on triode stages on 144 Mc. indicate that the use of triodes in the output triodes still seems to give better results than the well known cascade providing that neutralization is perfected. Capacitive neutralization is the best, but I am not sure of this, hence I should think that the double triode 638 type would be the best to use. Perhaps the use of a 638 in the output triode is an interesting technical section for us.

ARRP proposing a trip into the ranges and is looking for VFOs to folks get the portable gear. I am not sure if this is a good idea.



The three c.r.o. tubes on the right show respectively the carrier, the audio and the combined or modulated signal. The small cabinet in the centre of the desk is the tuning control and speech circuit to the receiving post over the 144 Mc. link. The HRO receives the 144 Mc. sig from receiving post via a crystal controlled converter. The c.r.o. on the desk is the transmitter monitor.

HAMS

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| 900-22 | 2,500, 5,000 | 2, 3.7, 8, 12.5, 15 | 1 | *40-15,000 | 15 | Single 807, EL34, etc., to V.C. | 57/6 |
| 896-9 | 8,000, 10,000 | 2, 3.7, 8, 12.5, 15 | 1 | 30-15,000 | 15 | P.P. 6V8Gs, A or AB1 to V.C. | 62/6 |
| 897-9 | 8,000, 10,000 | 100, 125, 166, 250, 500 | 1 | 30-15,000 | 15 | P.P. 6V6Gs, A or AB1 to Line | 62/6 |
| 763-9 | 3,000, 5,000 | 2, 3.7, 8, 12.5, 15 | 1 | 40-20,000 | 15 | P.P. 2A3s, A or AB1 to V.C. | 62/6 |
| 808-26 | 500 | 2, 3.7, 8, 12.5, 15 | 1 | 50-20,000 | 15 | Line to Voice Coil | 42/6 |
| 870-26 | 10,000 | 2 or 8 | 1 | *20-20,000 | **8 | P.P. 6V8Gs or 807s as Triodes | 57/6 |
| 871-9 | 10,000 | 2 or 8 | 1 | *20-20,000 | 12 | P.P. 6V8Gs or 807s as Triodes | 81/- |
| 872-9 | 10,000 | 3.7 or 15 | 1 | *20-20,000 | 12 | P.P. 6V8Gs or 807s as Triodes | 81/- |
| 891-22 | 6,500 | 63, 100, 125, 166, 250, 500 | 1 | 50-12,000 | 35 | P.P. 807s, AB1 to Line | 62/6 |
| 892-22 | 3,200 | 50, 62, 83, 125, 250, 500 | 1 | 50-12,000 | 55 | P.P. 807s, AB2 to Line | 97/- |

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| MIC.3-2 | General Purpose | 1½in dia. x ½in thick | 20db Peak at 2500 C.P.S. | Mona | £1 19 3 |
| MIC.3-5 | " " | " " " " " | 12db " " " " | Mervyn | 1 19 3 |
| MIC.3-6 | " " | " " " " " | 5db " " " " | Myrtle | 1 19 3 |

MIC. 6 SERIES

| TYPE | DESCRIPTION | DIMENSIONS | RESPONSE | CODE | PRICE |
|----------|-----------------|-----------------------------|--------------------------|--------|---------|
| MIC.6-4 | General Purpose | 2 1-3½in dia. x 19-32 thick | 20db Peak at 2250 C.P.S. | Margie | £1 19 3 |
| MIC.6-6 | " " | " " " " " | 5db " " " " | Maudie | 1 19 3 |
| MIC.6-11 | " " | " " " " " | 12db " " " " | Mandy | 1 19 3 |

MIC. 14 SERIES

| TYPE | DESCRIPTION | DIMENSIONS | RESPONSE | CODE | PRICE |
|-----------|-----------------|-------------------------------|--------------------------|----------|---------|
| MIC.14-5 | General Purpose | 1 7-16in dia. x 11-32in thick | 20db Peak at 3500 C.P.S. | Maxie | £1 19 6 |
| MIC.14-11 | " " | " " " " " | 12db " " " " | Mitchell | 1 19 6 |
| MIC.14-12 | " " | " " " " " | 5db " " " " | Malcolm | 1 19 6 |
| MIC.15 | Hearing Aid | 0.9in dia. x 0.155in thick | 30db " " 3000 " | Marlene | 1 19 6 |
| MIC.17 | " " | 15-16 in sq. x 7-32in thick | 30db " " 3500 " | Maggie | 1 19 6 |
| MIC.18 | General Purpose | 1 7-16 in dia. x 9-32in thick | 20db " " " " | Maisie | 1 19 6 |

MIC. 23 SERIES

| TYPE | DESCRIPTION | DIMENSIONS | RESPONSE | CODE | PRICE |
|----------|-----------------|-----------------------------|--------------------------|----------|---------|
| MIC.23 | General Purpose | 1 8-16 sq. x ¼in thick | 20db Peak at 3000 C.P.S. | Maureen | £1 19 3 |
| MIC.23-3 | " " | " " " " " | 5db " " " " | Margaret | 1 19 3 |
| MIC.23-4 | " " | " " " " " | 12db " " " " | Milton | 1 19 3 |
| MIC.22 | High Quality | 1 18-16 dia. x 9-16in thick | " " " " " | Martin | 2 15 6 |

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Coolman also finding it hard to get in much time for Ham Radio. All 3HW and Stan 2AD at Warracknabeal are now away.

By the time this is read we should have the zone rag-chew on Wednesday evenings in full swing again; conditions on 80 mx are rapidly improving, there should be no excuse on the score of QRN.

There has been enrolled at Coolman a new member, Mr. Wendenham, who is a bit like later on some QRM for 2AJJO, hope so anyway, Jack.

On behalf of the South Western Zone I would like to congratulate all the boys in the North Coast Zone for a mighty job, well done, in the recent floods.

NORTH COAST

The outstanding event on the North Coast for February was the severe floodings which took place for a few days in the area close to the Queensland border, the very northern areas being by far affected most. One could even say devastated. Shining right through the misery and destruction is the magnificent efforts made by many Amateurs in advising the outside world of the plight of their fellow citizens and the help and assistance so necessary at such times.

The history of Amateur operations during the flood, and, understand, is being compiled by 3CH for publication later in the month. I will not go into details in these notes, I can't, however, let the occasion pass without mentioning the efforts of the North Coast boys in flood bound towns our thanks to all the various operators, both Amateur and Professional, at spots in time or other, and to get a message through. On the other hand, as Zone Officer, I must congratulate the North Coast chaps on a magnificent effort.

As a result of the nature of North Coast Amateurs have been authorised by the P.M.G.'s Dept. to operate their transmitters on frequencies used by transmitters VKG Sydney and VKG3 Newcastle, in times of emergency and for periodical testing. One stipulation however, is that the Amateur's call sign is read and offered, and I will not go into details in these notes, I can't, however, let the occasion pass without mentioning the efforts of the North Coast boys in flood bound towns our thanks to all the various operators, both Amateur and Professional, at spots in time or other, and to get a message through. On the other hand, as Zone Officer, I must congratulate the North Coast chaps on a magnificent effort.

The next important event for the North Coast is the Annual Convention at Urunga. When you read this there will not be much time left so you had better make your arrangements. DO IT NOW, by writing to SAHR, Kempsey, and enclosing 30/- deposit.

As an addition to the zone is Jack 3ADT who is now established at Inverell. Jack's new QTH is surrounded by beams—three I believe in less than 200 yards. Have to work out a scheme to stack them. That's about all for now chaps, so I best try and get dry now. Had 4 inches rain since the flood!

VICTORIA

What with the pressure of business and the cancellation of the March meeting the notes for this month will, of necessity, have to be rather brief.

The only outstanding event that really requires comment was the National Field Day. Very few portable stations were heard in VK3. I don't mind admitting that I was a bit of a change of date help? Personally I don't think it made one iota of difference. Those stations heard to have been heard with whatever any form of portable operation is on.

As I see it, the trouble lies more with the lack of interest by home stations, with special emphasis on the latter. No need to say, I just ignore the calls from portable stations. 3JN probably thinks the same about the 20 mx gang. During the latter in Len spent a considerable time calling on 20 for zero results, although he did hear stations calling him. I'm not trying to exaggerate the 20 mx gang, but those that did co-operate made a very small proportion of the stations on the band. If anybody has any ideas on how to increase the interest of home stations, please let me hear. I can't copy a signal under "10 dB over 9." After all this morning must take a brighter view of the whole business and thank those who did co-operate. It was a very hot, windy morning, the effects of a hot, windy morning, the flies, the dust, the tree climbing, and the soaking

we all got during the afternoon. All in all, we did enjoy ourselves.

The weather was very dry and may not see a new Council. I hear that some will not stand for re-election. What about some of the young 'uns, without family responsibilities, having a go? Did you see Mr. E. W. Higgins' report on the VK5 earthquake? "City of Lurches!" Must put that chap on my pay-roll.

VKS TWO-BAND SCRAMBLE

A Two-Band Scramble will be held on Sunday, 14th April, 1964. To listen the bands up, it is intended to commence operations at 2 p.m. and finish at 5 p.m. The purpose of the scramble, no multipliers or bonus systems will be employed. Don 3AJL will be the control station and he will start the Scramble off at the appointed time.

The rules are as follows:

1. Any two bands may be used, but you can work the same station on both bands only.
2. Scoring will consist of time, signal report, given and received, and one point for each contact.
3. Contacts may be by phone or c.w.
4. The highest number of points scored will be the winner.
5. Logs to be sent to the office, 181 Queen Street, Melbourne, not later than 30th April, 1964, and please mark the envelope "Scramble."
6. If you are unable to attend, please let me know why it should not be, the Division will arrange others on a more elaborate scale.
7. The winner of the scramble, if so shaped in it, if you possibly can.

STOP PRESS—MARATHON IX HUNT

The Marathon Transmitter Hunt was held on Sunday, 14th March, under ideas of other conditions. Although the number that took part was disappointing, the Hunt was a great success, and thoroughly enjoyed by all present.

Four locations were chosen, namely, Deer Park, Kellor, Sunbury, and Gisborne.

The winner was Jack 3VE, with AJL 3IE, Bill 3TX and Don Seidenman. The time taken for the four transmitters was 2 hours 18 minutes. The second place went to Len 3JN. His time was 2 hours 45 minutes. The third place was 45 miles. Congratulations to the winners.

CENTRAL WESTERN ZONE

A recent welcome visitor to the zone was Lin 3AHL who spent a few days relieving in Horsham. Lin was formerly of Stawell, so still has a great interest in the zone. One evening he was spent with Merv 3QO and I was in the zone hook-up, the other evening was at Byron's 3TA, where he was able to have a rag with Chas 3ABX. I was in the zone hook-up, the other evening was at Byron's 3TA, where he was able to have a rag with Chas 3ABX. I was in the zone hook-up, the other evening was at Byron's 3TA, where he was able to have a rag with Chas 3ABX.

Jim 3SV is putting in a consistent signal on hook-up nights. Sorry you're out on one or two nights, clean forgot you were rock bound down the low end. Of interest, especially Herb 3JN, is the fact that Charlie 3AC heard a signal from 3JN on 20 mx and 3JN's signal was outstanding. Herb. Some nights the commercial QRM is terrific on 80, otherwise we would have been able to listen to the doing you. Well no more news for the present so until next Wednesday night at 8.30 on 80 mx, I'll be seeing you.

SOUTH WESTERN ZONE

Activities in the zone have not been great so far this year, but are picking up now. Early in the year 3JN was heard on 20 mx and 3JN's signal was outstanding. Herb. Some nights the commercial QRM is terrific on 80, otherwise we would have been able to listen to the doing you. Well no more news for the present so until next Wednesday night at 8.30 on 80 mx, I'll be seeing you.

city. The Hamilton boys will be heard again now the Royal visit is over. Tim (George to you) 3JG reports the King and Queen's itinerary, maybe you can call here now as they are often threatened. 3MC Coleraine back on c.w. so Neil 3JG has some opportunity again 3JG was in VK5 and that's all right with him. Returned to VK3 by boat. 3JH is the only Ballarat rep who comes in on the hook-up held every Sunday on 20 mx, listening on 40 mx every now and again, but Jack still thinks the key is the 3YV on holidays, taking high antennas, perhaps this time it's "dinkum" 3AGD has been making a lot of noise about listening in the air. When you start John, I will tell you about v.f.o.s, so there will be no break-in. 3JN's boat is back on 20 mx, but 3JN still some hope Doc. The next Convention of the zone will probably be held at Hamilton on 10th and 11th April. Full details can be heard on the weekly 3YV broadcast.

NORTH EASTERN ZONE

Doug 3L seems to be established on 80 mx now where Jim 3JZ is also thought to be heading, with some help from Syd 3CT, Alan 3UI and Peter 3AIF have been fairly quiet lately. Murray 3JW has mentioned in the provincial newspaper that he is making arrangements for the Royal visit to Shepparton on 8th March, and this was probably greatly interesting to 3JN. 3JN's boat is back on 20 mx, but 3JN still some hope Doc. The next Convention of the zone will probably be held at Hamilton on 10th and 11th April. Full details can be heard on the weekly 3YV broadcast.

We were early in following the lead of the South Western Zone in approaching Frank 3ZU, who regretted that he was unable to comply, to run a Convention. Frank 3ZU is in good health and very busy, and Gordon 3XU also has his hands full in his commercial field. 3JN's boat is back on 20 mx, but 3JN still some hope Doc. The next Convention of the zone will probably be held at Hamilton on 10th and 11th April. Full details can be heard on the weekly 3YV broadcast.

QUEENSLAND

ANNUAL GENERAL MEETING

FRIDAY, 2nd APRIL

Royal Geographical Society, Ann Street.

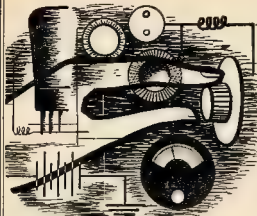
ANNUAL DINNER

SATURDAY, 3rd APRIL

Anzac House, Gregory Terrace.

SOUTH AUSTRALIA

The monthly general meeting of the VK3 Division was held in the Clubroom on the night of 9th February to the usual representative gathering of members. The actual meeting was presided over by a "Umbrella" of the part of Council, because at the conclusion of the general meeting, the annual general meeting was opened and concluded. The reason for this description on the part of Council was to ensure that members would not be frightened off the meeting because it was an annual general meeting. The VK3 boys are no different to any other VK boys and can smell annual general meetings a mile off and are anxious to dispel any insidious appointments and hold listening to what they think will be dreary President, Treasurer, and various other boring annual reports. The VK3 boys are no different to any other VK boys and can smell annual general meetings a mile off and are anxious to dispel any insidious appointments and hold listening to what they think will be dreary President, Treasurer, and various other boring annual reports.



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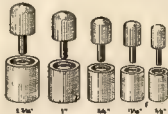
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Little need be said regarding the annual general meeting which followed, because if the night did not have the type of meeting, they wouldn't want to talk about it. The president gave his annual report, the Treasurer gave his annual report, the annual questions were asked and answered, and the annual address. In fact it would seem that it is just as well that it is an annual event otherwise the members would have to go down to the club every day to sleep despite external noise. Nevertheless, and not withstanding, should any member, country or otherwise, desire to listen to the words of wisdom that fall from the president's ruby lips, or to hear the gems of oratory that issued from that wizard of things financial, the members are advised to purchase the speeches available to members complete with ear muffs and headache powders. All in all, the meeting was a success, and whilst one or two members passed audible remarks concerning the fact that the President had rung the clock on the union, the meeting was a success, and the night was taken in good part. Possibly they were semi-conscious, or semi-awake, or something from the words of the speaker, but they were participating.

UPPER MURRAY AREAS

SRE has been busy pruning, encircling, watering, dispensing a certain amount of justice on the grounds, and recording, as well as a little cornering, which fully meant that Hurtle has not had much time for any activity on the air this month.

Hurtle was seen at several times in making a beam for the unmentionable bands, and from all reports down here, Hughie has been decidedly active on the aforementioned bands.

The fact that he is so busy means we don't know those bands are taboo to Mr. SMA and his XYL were lucky not to be figuring in the silent keys this month.

Fred was telling me that he had been very busy on the ground, and became entangled with a fence and tank stand and the lot bit the dust. The tank which was sitting on the stand had about 200 gallons of

"I noticed in the report of the meeting that it was suggested by Hugh SBC that due to the rising costs of technical magazines that they be purchased collectively instead of individually. The idea of a small revolving fund was suggested. One of what must be said to buy will hold the idea up. It is only when we read of ideas like this that the city slickers realize that the country boys cannot take a walk down North Terrace to the lending library and borrow anything that they require. Thinking of the bookshelves, perhaps the country lending section of the library on North Terrace would include technical magazines in their service. It shall be looked into and reported upon. My fee will be a couple of whoopie balloons from out of the garden of the top-sillier!"

WOOMERA RADIO CLUB

have contacted the H. H. Hams, who shall remain nameless, has been forced to spend all of his pocket money this month in buying gloves for the two fellow Hams who called the other night to take him to the general meeting. It appears that he was dozing in front of the radio when they crept into the sitting room, at the invitation of his XYL, and they both planted a noisome and decidedly moist kiss on his brow, and then, emboldened and by the hysterical suggestion of the other, they both turned to his quarters and hallooed the "surprise."

take any further cat-naps underneath his umbrella. You beaut!!

SOUTH EAST AREA

The cover of the book is creating a lot of interest in VKS and the sample of the proposed cover met with everybody's satisfaction. The VKS Division circulated all members, city and country, a questionnaire to be filled in and returned for convenience. Judging by all the comments from members, the first issue should be a self-help book, much like the one in the Commonwealth extends to all the hardworking members who will be responsible for its publication, their appreciation for a job which has all the appearance of a very important one.

I have been asked to draw the attention of all Associate Members to the slow mere translations that are now available to them. Tom's book, "The Economics of the USSR," 1960, 200 p.m., Reg 58R from 7.50 to 2.5 p.m. on Monday, and Gordon's "U.S. 1930-1950," on Wednesday, 1950, 200 p.m., Reg 58R from 7.50 to 2.5 p.m. on Wednesday.

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